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| APPLICATION NO.              | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|------------------------------|-------------|----------------------|---------------------|------------------|
| 10/724,644                   | 12/01/2003  | Cha-Keun Yoon        | 51007/DBP/Y35       | 2319             |
| 23363                        | 7590        | 01/23/2006           | EXAMINER            |                  |
| CHRISTIE, PARKER & HALE, LLP |             |                      | PATEL, ASHOK        |                  |
| PO BOX 7068                  |             |                      | ART UNIT            |                  |
| PASADENA, CA 91109-7068      |             |                      | PAPER NUMBER        |                  |
|                              |             |                      | 2879                |                  |

DATE MAILED: 01/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                                    |  |
|------------------------------|--------------------------------------|------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/724,644 | <b>Applicant(s)</b><br>YOON ET AL. |  |
|                              | <b>Examiner</b><br>Ashok Patel       | <b>Art Unit</b><br>2879            |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

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1. Applicant's arguments filed 11/03/2005 have been fully considered but they are not persuasive.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 4, 5, 7, 8, 10, 12, 15, 16, 18, 19, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Whang et al (USPN 6,373,195, of record).

As to claims 1 and 12, Whang et al disclose applicant's claimed plasma display panel (Figures 1-3, 4C etc.) including: a first substrate (2, 21), a second substrate (3, 22) provided at a predetermined distance from the first substrate and forming a vacuum assembly with the first substrate; barrier ribs (14, 30, 31) forming pixels between the first substrate and the second substrate such that subpixels (at least three rectangles shown in Figure 3, bottom view) forming one grouping of pixels are

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arranged in a triangular configuration, a plurality of address electrodes (15, 29) formed on a surface of the first substrate facing the second substrate, and formed along a first direction of the first substrate, a plurality of discharge sustain electrodes (7, 32) formed on a surface of the second substrate facing the first substrate, and formed along a first direction of the second substrate; and a phosphor layer and discharge gas provided between the first substrate and the second substrate,

wherein, as shown in at least Figures 3 and 4C, if a length of a line passing through a center of the subpixels and interconnecting two opposing corners of the subpixels is (c), and if a length of a line extending between two adjacent corners is (b, which is either a vertical line made by a half of 1.08mm = 0.54mm = 540 $\mu$ m or a horizontal line of 720 $\mu$ m), the subpixels are formed such that a (b) to (c) ratio would satisfy applicant's claimed ratio of between 1:1.5 and 1:5.

The Examiner's calculations to obtain diagonal length (c) of a rectangle in Figure 4C using Pythagorean's principal of geometry is:  $(540^2 + 720^2)^{1/2} = 900\mu\text{m}$ . Therefore ratio of b/c would be 540:900 and 720:900 or 1:1.338 and 1:1.501, which satisfies applicant's claimed ratio.

As to claims 4 and 15, as shown in Figs. 1 and 3, Whang et al disclose each of the discharge sustain electrodes including a bus electrode (6, 33<sub>1</sub>) formed along the first direction of the second substrate, and transparent electrode sections (7, 32) extending from the bus electrodes to be positioned within areas corresponding to the subpixels.

As to claims 5 and 16, Whang et al disclose the bus electrodes formed corresponding to a shape of a barrier ribs.

As to claims 7 and 18, as shown in Figure 3 and 4C, Whang et al disclose the address electrodes (15) including first (narrow) area sections formed at a predetermined width within an area covered by the barrier ribs, and second (wider) area (which is perpendicular to the first area) sections formed at a predetermined width greater than the width of the first area sections and within areas encompassed by the subpixels.

As to claims 8 and 20, Whang et al disclose the second area sections formed in a (triangle) shape similar to the shape of the subpixels.

As to claims 10 and 21, Whang et al disclose the subpixels, which are symmetrical about a straight line passing through a center of the pixels.

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4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 2, 3, 9, 11, 13, 14, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whang et al, as applied to claims 1 and 12.

As to claims 2, and 13, although Whang et al do not disclose the PDP device of applicant's claim 1 satisfying the b/c ratio between 1:2.5 and 1:3.5, it would have been obvious to one ordinary skill in the art to modify parameters b and c through routine experimentation so that the ratio would be within a desired level, since it has been held that where general conditions of the claim are discovered in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

As to claims 3 and 14, Whang et al do not disclose the sub-pixels of the PDP device of Figure 3 or 4 including hexagons. However, Whang et al disclose the hexagonal shaped barrier ribs, in Figure 2 (which is separate device from that of Figure 3 or 4), for providing hexagonal shaped sub-pixels.

Therefore, it would have been obvious to one of ordinary skill in the art to provide Whang et al's device of Figure 3 or 4 and to include hexagonal shaped barrier ribs, as shown in Figure 2, for providing hexagonal shaped discharge sub-pixels.

As to claims 9 and 20, Whang et al do not disclose the PDP device of Figure 3 or 4 including the sub-pixels of the second area sections formed in hexagonal configuration. However, Whang et al disclose the barrier ribs of hexagonal shaped configuration in Figure 2 (which is separate device from that of Figure 3 or 4) for providing hexagonal shaped discharge sub-pixels.

Therefore, it would have been obvious to one of ordinary skill in the art to provide Whang et al's device of Figure 3 or 4 including hexagonal shaped sub-pixels barrier ribs, as shown in Figure 2, for providing hexagonal shaped discharge sub-pixels.

As to claims 11 and 22, Whang et al do not disclose the feature of lines extending between two adjacent corners of the subpixels, which is parallel to the line passing through a center

of the sub-pixels and interconnecting two opposing corners of the subpixels, as claimed by applicant.

However, Whang et al disclose the parallel lines (Figure 2) by providing the hexagonal barrier ribs or hexagonal subpixels. This feature results into the hexagonal shaped discharge sub-pixels.

Consequently, it would have been obvious to one of ordinary skill in the art to modify Whang et al's device of Figure 3 or 4 by providing hexagonal shaped barrier ribs, as shown in Figure 2, for obtaining the parallel lines for hexagonal shaped discharge sub-pixels.

6. Claims 6 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whang et al, as applied to claims 1 and 12, in view of Takagi et al (USPN 6,376,986, of record).

As to claims 6 and 17, Whang et al do not disclose the bus electrodes formed in a zigzag shape as claimed by applicant.

However, Takagi et al is cited for showing a PDP including zigzag shaped bus electrodes 41 (Figs. 6, 8) to match pattern of the barrier ribs so as to provide more uniform discharge within the sub-pixels.

Therefore, it would have been obvious to one of ordinary skill in the art to provide Whang et al's device of Figure 3 or 4 by providing zigzag shaped bus electrodes, as taught by Takagi



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et al, to match pattern of the barrier ribs so as to provide more uniform hexagonal shaped discharge within the sub-pixels.

7. The Examiner responds to applicant's arguments/remarks as follows.

Applicants argue that Whang et al do not disclose ratios/dimensions for the subpixels or barrier ribs, as set forth in applicant's claims 1 and 12.

This is not found persuasive since according to (vertical and horizontal) lengths of barrier ribs shown in drawing Figures 3 and 4C of Whang et al, the two ratios of b:c comes out to be 1:1.338 and 1:1.501, which satisfy applicant's claimed ratio.


The Examiner realized that he applied incorrect dimensions of the pixels lengths to come up with ratio of b:c in the last office action. Accordingly this office action is made another non-final rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ashok Patel whose telephone number is 571-272-2456. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Ashok Patel  
Primary Examiner  
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